SUMMARY FOR FE-01-06
SELECTED AND POSSIBLE CONTRIBUTING FACTORS

SELECTED FACTORS

Railroad: Burlington Northern Santa Fe Corporation (BNSF)
Location: Tacoma, Washington
Region: 8

Month: February
Date: Feb. 7, 2006
Time: 2:09 p.m., PST

Data for Fatally Injured Employees(s)

Car Inspector
55 years old
25 years of service
Last rules training: July 21, 2005
Last safety training: Feb. 25, 2002
Last physical: Dec. 16, 2005

Data for All Employees (Craft, Positions, Activity)

Craft: Maintenance of Equipment

Positions:

BNSF Mechanical Crew No. 1
Fatally injured Car Inspector
Foreman

BNSF Mechanical Crew No. 2
Foreman
Car Inspector

Mountain Pacific Rail, Inc. Crew (Contractors)
Contractor Foreman
Contractor Mechanical Employee

BNSF Train QDENTAC1
Crew members not specified
(This was the train that derailed.)

SUMMARY FOR FE-01-06 CONTINUED
SELECTED FACTORS CONTINUED

Activity

A contractor crew, employed by Mountain Pacific Rail, Inc., was engaged in re-railing a derailed train while two BNSF crews provided oversight and guidance. The incident occurred during the jacking/lifting phase of the operation.

EVENT

A Car Inspector was fatally injured by a sudden, unexpected movement of on-track equipment while a derailed train was being re-railed by contractors, with oversight and guidance by BNSF staff.

POSSIBLE CONTRIBUTING FACTORS

PCF No. 1

The fatally injured Car Inspector violated railroad operating rules when he placed his body under the rail equipment during the jacking/lifting process without first taking safety precautions such as making sure the equipment was supported by approved stands or blocking, the equipment had been lowered back onto the trucks with proper blocking from truck to car body, or the jacks were returned to their lowered position.

PCF No. 2

Investigation findings revealed that railroad operating rules, which required additional job briefings when work conditions changed, were not followed. This resulted in communication failure between the BNSF Mechanical Foreman, the MPR Foreman, and the fatally injured BNSF Car Inspector. Job conditions changed when the rail car would not sit back down in the bolster.

PCF No. 3

Investigators concluded that a longer cutting torch, at least 65 inches long, may have provided railroad workers the ability to cut the center pin while providing a safer placement for the fatally injured Car Inspector.

PCF No. 4

The fatally injured Car Inspector, on his own initiative, got the wheel truck into position next to the rail car, lit the torch, crawled under the rail car, and cut the center pin. The BNSF Mechanical Foreman failed to stop the Car Inspector in time to apply critical safety rules.

REPORT: **FE-01-06**

RAILROAD: Burlington Northern Santa Fe Corporation (BNSF)

LOCATION: Tacoma, Washington

DATE & TIME: Feb. 7, 2006; 2:09 p.m., PST

EVENT[1]: A Car Inspector was fatally injured by a sudden, unexpected movement of on-track equipment during a jacking/lifting operation while a derailed train was being re-railed.

EMPLOYEE:

Craft:	Maintenance of Equipment (MOE)
Occupation:	Car Inspector
Age:	55
Length of Service	25 years
Last Rules Training:	July 21, 2005
Last Safety Training:	Feb. 25, 2002
Last Physical:	Dec. 16, 2005

CIRCUMSTANCES PRIOR TO THE ACCIDENT

On Feb. 7, 2006, at 7 a.m., the BNSF Mechanical Car Inspector went on duty at the car repair shop in Tacoma, Washington. Mechanical craft employees routinely start their work shift at 7 a.m. and end the shift at 3 p.m. The employee was part of a 2-man crew assigned to a repair truck (wheel truck) to make repairs to rail equipment not located in the repair shop. The crew's assignment was to travel to Centralia to make a repair. When passing Olympia, the crew members received a radio communication from Tacoma's Foreman Car Inspector about a derailment and were ordered to return to Tacoma.

At approximately 9:55 a.m., BNSF Train QDENTAC1 derailed one empty railroad car, CNA 712876 (B-end), while pulling westward into the Log Yard Lead at Tacoma**.** The derailment occurred on the geographic east end of the Log Yard near Switch No. 1 and Switch No. 2. The train comprised 31 empty auto racks on the head end of the train and 37 loaded inter-modal cars on the rear of the train. The train was 7,016 feet long, weighed 4,544 tons, and had four locomotives. The Log Yard is a storage yard located geographically south of the BNSF main track.

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[1] "Event" is defined as "occurrence that immediately precedes and directly results in the fatality." Possible contributing factors are identified in the following report and attached summary.

Heavy equipment was going to be needed to re-rail the car and at approximately 11:30 a.m., Mountain Pacific Rail Inc. (MPR), a contract company, was called to re-rail car CNA 712876. At approximately 1 p.m., personnel from MPR arrived at the Log Yard with their equipment and began the re-railing process. The wheel truck crew had been called to the location to assist other BNSF Mechanical Forces. *A general job briefing took place between the contractor crew and the BNSF crews.* The contractor would re-rail the car and BNSF mechanical forces (two Foremen and two Car Inspectors) would stand by in case there were any problems with the re-railing job.

Using a tractor/boom machine similar to a D-8 Cat equipped with a side boom, the MPR attempted to re-rail the car. When lifted, the railroad car rolled toward the Cat in an eastward direction. The MPR maneuvered the rail car back into position, through the use of a pick-up truck and chain, which better positioned the rail car for lifting. At approximately 2 p.m., MPR personnel placed the B-end of the rail car back on the track. The contractor then encountered a problem: the car body center plate would not fit back down into the truck bolster bowl. Several attempts were made by moving the rail car from side to side, forward and back, without success. The rail car body was then raised upward between one and four inches, through the use of the tractor/boom, allowing the car body center plate to rise and clear the truck bolster bowl. At that point, the MPR Foreman, a BNSF Mechanical Foreman, and Car Inspector had a brief discussion about the center pin. The MPR Foreman and BNSF Mechanical Foreman were kneeling under the B end of the rail car body on the outside of axle 1 discussing the situation and how the rail car might shift. The Car Inspector went to the wheel truck and positioned it along side the B-end of the rail car. He then pulled out an Oxy/Acetylene torch setup. The employee lit the torch and assumed a position underneath the rail car between the L-2 wheel and the center sill above axle 2. The second BNSF Foreman, BNSF Mechanical Worker and MPR Worker were standing next to the wheel truck. The MPR truck driver was in the cab of the truck chained to the A end of the rail car and the MPR tractor/boom operator was at the controls of the machine.

At this time, the weather was cloudy, and the temperature was 50° F.

THE ACCIDENT

The MPR Foreman and BNSF Mechanical Foreman were kneeling under the B end of the rail car body on the outside of the axil, discussing the situation and how the rail car might shift. The two Foremen noticed the Car Inspector starting to cut the center pin. The MPR Foreman moved to tell the employee to stop, and the BNSF Foreman yelled to get the Car Inspector's attention. Before the MPR Foreman and the BNSF Foreman could warn the Car Inspector about the potential for the rail car to shift under stress, the employee cut the center pin. As soon as the pin was cut, a loud bang occurred, and the car body shifted approximately 12 to 18 inches, pinning the employee between the inside of the L-2 wheel and center sill of the car body. Workers realized something was wrong, and the MPR Foreman ordered the tractor/boom operator to move the machine forward, enabling the rail car body to shift in a northward direction. This allowed workers to pull the employee out from under the rail car. The second BNSF Mechanical Foreman called emergency 911 at 2:22 p.m., and an ambulance arrived on the scene at

approximately 2:30 p.m. The Car Inspector was transported to St. Joseph's Hospital in Tacoma Washington where he was pronounced dead at 2:53 p.m. The cause of death was a blunt head injury with basilar skull fracture.

POST-ACCIDENT INVESTIGATION

Post-accident toxicological testing of the deceased was not performed because this accident did not meet 49 CFR, Subpart C, post-accident toxicological testing criteria. A blood alcohol test was performed by the Pierce County Medical Examiner; the results were negative.

BNSF has an in-house understanding at the Tacoma Mechanical Department that when a contractor is called to do work that would normally be done by craft employees, a Foreman or Supervisor from the railroad shall be present at the scene acting only in a passive role while the contractor actively performs the work. The railroad representative is an advisor to the contractor. On this date there were two Foremen accompanied by two Car Inspectors.

Rail car CNA 712876, a bi-level auto rack involved in the Feb. 07, 2006 incident at the BNSF Log Yard in Tacoma, Washington, was fitted with temporary wood blocks to keep the rail car supported on the truck and moved to the BNSF mechanical shop Tacoma, Washington. On Feb.14, 2006, BNSF performed a mechanical inspection on rail car CNA 712876 and examined the center pin. An FRA MP&E inspector was present during tear-down inspections of both (A) and (B) trucks.

Inspections revealed the rail car was equipped with Double Locking Center pins on both ends of the rail car. The portion of the center pin located in the car body center plate had a rectangle retainer through the top portion of the center pin with one bead of weld prohibiting the retainer from being dislodged from the center pin. The center pin was pushed up inside the car body center plate, requiring a 90-degree twisting of center pin to lock in place in the center plate sill housing.

The bottom portion of the center pin that rested in the truck bolster bowl of the rail car's truck had a slot through the center pin. A flat rectangle retainer with a spring clip bolted to the retainer held it in place when installed through the center pin. Installation of the retainer was done through the center ribs of the truck bolster below the center plate where a housing existed that allowed the center pin to rest in the truck bolster, preventing the pin from dropping down even if the retainers were not installed. The bottom retainer could only be installed or removed in a manner that was parallel to the truck bolster.

Inspection of both sides of the rail car revealed no stencils or decals indicating the rail car was equipped with double locking center pins.

The car was raised by floor jacks to the approximate height of two to four inches between the center plate of the car body and the bolster bowl of the truck. Wood blocking previously installed when the rail car was moved from the scene to the BNSF car shop was removed. Blocks were installed on each side of the truck bolster bowl between each side-bearing cage to

obtain a better view of the center pin area. The Contractor Foreman in charge of the re-railing process on Feb. 07, 2006 was able to view the distance the rail car was raised off of the truck and verify it was the same height as on the day of the incident. The Contractor Foreman verified several times that the rail car was positioned at the approximate height he remembered. The distance between the center plate of the car body and the bolster bowl of the truck was approximately two to four inches. An inspection from each side of the B-end truck and the left and right sides of the rail car revealed several views of the center pin in the locked upper position. Directional views from the left and right sides of each side of the bearing cage on each side of the car looking towards the center pin may have provided for the use of a long-handled cutting torch. Measurements taken at the L-2 wheel position from the center pin and the outside edge of the rail car was approximately 60 inches.

Analysis and Conclusions

In violation of railroad operating rules, the fatally injured Car Inspector placed his body under the rail equipment during the jacking/lifting process without first taking safety precautions such as making sure the equipment was supported by approved stands or blocking, that the equipment had been lowered back onto the trucks with proper blocking from truck to car body, or that the jacks were returned to their lowered position. The fatally injured employee also violated railroaded operating rules prohibiting him from walking, standing, or working under a suspended load, and requiring him, when working near lifting operations, to keep clear of the swinging boom, counterweight, or cab.

Investigation findings revealed that railroad operating rules, which required additional job briefings when work conditions changed, were not followed. This resulted in a communication failure between the BNSF Mechanical Foreman, the MPR Foreman, and the BNSF Car Inspector. Job conditions changed when the rail car would not sit back down in the bolster. A job safety briefing between all parties would have been instrumental in preventing the fatal incident. Both BNSF Mechanical Foremen were terminated as supervisors and were given the opportunity to return to the mechanical department as craft workers.

A cutting torch at least 65 inches long may have provided railroad workers the ability to cut the center pin while providing a safer placement for the Car Inspector. Following the incident, BNSF purchased four cutting torches with handles over 60 inches in length.

The BNSF Car Inspector acted on his own initiative to get the wheel truck into position next to the rail car, light the torch, crawl under the rail car, and cut the center pin. The BNSF Mechanical Foreman did not stop the BNSF Car Inspector in time to apply critical safety rules.

APPLICABLE RULES

BNSF Railway Company Mechanical Rules and Policies
Effective Oct. 30, 2005, including revisions up to Dec. 14, 2005

S-1.0 Core Safety Rules

These rules provide a core of safe work practices for BNSF employees. The rules apply every day and in every job we do. They will guide and direct us in maintaining a safe work environment.

S-1.1 Job Safety Briefing

Employees must participate in a job safety briefing before beginning work and when work or job conditions change. The briefing includes a discussion of the general work plan, existing or potential hazards, and ways to eliminate or protect against hazards. Outside parties or contractors involved in the work area must be included in the job safety briefing.

S-10.1 Raising Equipment

When raising equipment:

Block the wheels before raising the end of the equipment.

Do not place any part of your body under or directly alongside the equipment at any time during the jacking/lifting process unless the equipment is (a) supported by approved stands or blocking, or (b) the equipment has been lowered back onto the trucks with proper blocking from truck to car body, or (c) or the jacks are returned to their lowered position.

Stands must be certified and stenciled with the rated capacity.

Use the proper tongs to remove or position center pins on the cars.

Use cushioning material between the jack and equipment to prevent slipping. Wood cushioning material must not exceed one inch in thickness. Do not allow metal-to-metal contact.

S-17.5 Restrictions Near Hoisting Equipment

S-17.5.1 Working Near Equipment

Do not walk, stand, or work under a suspended load. When possible, avoid walking, standing, or working under crane booms, or in close proximity to pile driver leads.

When working with or near lifting operations, keep clear of the swinging boom, counterweight, or cab.